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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,370	06/23/2003	Michael J. Borden	6999	7476

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EXAMINER

PHAN, THAI Q

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/601,370

Applicant(s)

BORDEN ET AL.

Examiner

Thai Phan

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-14 and 16-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>June 2003</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Office Action is in response to patent application S/N: 10/601,370, filed on June 23, 2003. Claims 1-29 are pending in the Action.

#### ***Information Disclosure Statement***

The Information Disclosure Statements filed on 06/23/2003 is being considered.

#### ***Drawings***

The Drawings filed on 06/23/2006 are acceptable for examination.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-14 and 16-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Tautges et al, US patent no. 5,768,156.

As per claim 1, Tautges anticipates a method and apparatus for modeling three-dimensional objects with feature limitations very identical to the claimed invention.

According to Tautges the method includes:

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Generating a sheet of hexahedral to remove from a volume mesh of the three dimensional hexahedrons (col. 13, lines 10-28, col. 14, lines 20-65, col. 15, line 60 to col. 16, line 8),

Determining nodes for merging together within the sheet with a merging conditions or threshold (col. 24, lines 26-61, cols. 25-30),

Merging the nodes for each determined set of nodes, and

Removing the sheet of hexahedrons from the volume mesh (cols. 35-36).

As per claims 3-8, Tautges anticipates the claimed limitations such as neighboring hexahedrons, removing the determined hexahedron, pairing nodes for merging, a sheet intersection to move, etc.

As per claim 9, Tautges anticipates a method and apparatus for modeling three-dimensional objects with feature limitations very identical to the claimed invention.

According to Tautges the method includes steps:

Generating a sheet of hexahedral to remove from a volume mesh of the three dimensional hexahedrons (col. 13, lines 10-28, col. 14, lines 20-65, col. 15, line 60 to col. 16, line 8),

Determining nodes for merging together within the sheet with a merging conditions or threshold (col. 24, lines 26-61, cols. 25-30),

Merging the nodes for each determined set of nodes, and

Removing or extracting the sheet of hexahedrons from the volume mesh (cols. 35-36).

Similarly, claims 10-14 and 16-21 are directed the volume mesh generation with feature limitations similar to the rejected claims above. Claims 10-14 and 16-21 are thus rejected in like manner.

As per claims 22-29, the claims are directed to a system and program product executable by a computer as in the rejected base claims above. Claims 22-29 are also rejected in like manner.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US patent no. 5,553,206, issued to Meshkat, Siavash, on Sept. 1996
2. US patent no. 5,689,577, issued to Arata, Louis, on Nov. 1997
3. US patent no. 6,356,262, issued to Klosowski et al, on Mar. 2002
4. US patent no. 6,600,487, issued to Henn et al, on July 2003
5. US patent no. 6,825,839, issued to Huang et al, on Nov. 2004
6. US patent no. 6,879,946, issued to Rong et al, on Apr. 2005

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Phan whose telephone number is 571-272-3783.

The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 10, 2006

  
Thai Phan

Patent Examiner